

U.S. Application No. 10/606,974
AMENDMENT A

Attorney Docket: DKT00071

REMARKS

Applicants appreciate the Examiner's helpful comments for amending the specification, which was a translation of a German language original specification, to proper US format. Applicants have reviewed and revised the specification.

Applicants appreciate the indication of allowability of claim 30 (if amended). Applicants amend claim 30 to independent form and request indication of allowance of claims 30-32. Please charge the additional claims fees to the undersigned deposit account.

Claims 1 and 28-53 were pending. The "preferred" embodiments from claim 41 have been moved to new claim 54. Thus, Claims 1 and 28-54 are pending.

Reconsideration of the Non-Final Office Action mailed June 23, 2004 is respectfully requested in view of the following remarks.

Office Action

Turning now to the Office Action in greater detail, the paragraphing of the Examiner is adopted.

Information Disclosure Statement (Page 2)

The Examiner reminds Applicant that listing of references in the specification is not equivalent to a proper information disclosure statement.

In response, Applicant has reviewed the references and respectfully confirms that any listed references that have not been cited by the Examiner on form PTO-892 are not sufficiently

U.S. Application No. 10/606,974
AMENDMENT A

Attorney Docket: DKT00071

relevant to bring to the attention of the Examiner in the form of an Information Disclosure Statement.

Drawings (Pages 2 - 4)

The Examiner objects to the drawings under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

In response, Applicants provide a replacement Fig. 6 showing the "closing bodies or the flow-through restrictor (35) being integrated in the housing of the turbocharger (10)" (using dashed lines) and "at least one first catalyst being located in line with and downstream of the turbocharger" (using a box labeled "C"). Paragraph 00026 of the specification has been amended to refer to Fig. 6. Paragraph 00051 of the specification has been amended to refer to presence of catalyst as originally claimed in claim 53.

Accordingly, withdrawal of the objection is respectfully requested.

Specification - Abstract (Page 4)

The Examiner requires revision of lines 13-14 of the abstract, since the sentence structure of "thereby the there from dependent pressure..." is deemed to be incorrect.

Applicant has amended the Abstract in conformance with Claim 1, last subparagraph.

Specification (pages 3-5)

The Examiner objects to the disclosure because of

U.S. Application No. 10/606,974
AMENDMENT A

Attorney Docket: DKT00071

informalities.

Applicant has carefully reviewed and amended the specification.

Withdrawal of the objection is requested.

Claim Objections (pages 5-6)

The Examiner objects to Claims 33 and 46 because of informalities.

In response, Applicant has amended Claim 33 and 46.

Withdrawal of the objection is requested.

Claim Rejections under 35 U.S.C. § 112 (pages 5-6)

The Examiner rejects Claims 1 and 28-53 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

In response, Claims 1 and 28-53 has been extensively revised to conform to US practice.

Support for the amendment of claim 30 can be found at paragraphs [00045] and [00048] of the specification.

Withdrawal of the rejection is respectfully requested.

xx

Claim Rejections under 35 U.S.C. § 102 (pages 6-13)

The Examiner rejects Claims 1, 29, 33 and 39 under 35 U.S.C. §102(b) as being anticipated by Treuil (US Patent No. 4,096,697).

Applicants respectfully traverse.

In heavy vehicles equipped with turbochargers, it is well known to use a single stage turbocharger system to increase engine power as necessary and to reconfigure the system to

operate as a brake assist device to help the mechanical braking system slow the heavy vehicle. To switch to a brake assist device, the exhaust line is constricted so that exhaust back-pressure to the engine is increased, making the cylinders work harder on the compression stroke. Alternatively, exhaust gas may be recirculated back to the engine intake. Since the exhaust gas is fuel poor (low calorie), the compression energy used to compress the recirculated exhaust gas makes the engine work harder, which would be an undesired energy loss except in the case that it is desired to brake the engine.

As discussed in the specification, one-stage turbocharger brake assist devices are well known and easy to operate.

Two-stage turbocharger brake assist devices are however complex and expensive to operate. As described at paragraph 00012 of the specification, in a two-stage turbocharger the turbines and compressors respectively arranged in series are designed for different charge pressures. In practice this has the consequence, that very large constructive expenditure is necessary for realizing the above-mentioned brake assist device. In order for example to obtain one optimal brake assist module for each of the respective different modes of operation of the two-stage turbocharger, a large number of pipe switches indispensable in order respectively to achieve the desired pressures in the exhaust pipes and charge air lines. Such brake devices are thus very expensive in their manufacture, wherein however the increased expenditure does not bring about an improvement in braking quality. In particular in the case of very small turbochargers, which are employed primarily in internal combustion engines with very small engine compartments,

such a brake assist device has not been provided in satisfactory manner until now.

The Examiner correctly understands that Applicants consider the major distinguishing feature of the motor brake device for the two-stage turbocharged internal combustion engine of present invention to be, as concisely summed up at the end of claim 1, to use a variable closing device 30 so "that thereby the motor brake power is variably adjusted as required".

Applicants however submit that there is no teaching of such a system in the cited prior art.

Treuil does not even teach a motor brake assist device.

Treuil shows a primitive **non-regulated** two-stage turbocharging system. This two stage turbocharger it possible, for a given volumetric compression ratio of the engine, to indefinitely increase the ratio of supercharging, i.e. the ratio of the actual pressure of the precompressed intake air to atmospheric pressure. With highly supercharged engines **excessive combustion pressures** would result therefrom, which would overstress the component elements, members or parts of the engine. To overcome such a drawback one is then led to **reduce the volumetric compression ratio** of the engine.

The problem with decreasing combustion pressure is that such a decrease results however in making it difficult to **start the engine and operate at low-load conditions because the temperature of the intake air after precompression is not high enough to cause self-ignition of the injected fuel**.

Treuil overcomes this problem by selectively braking, reducing, hindering or impeding the flow rate of the exhaust gases in a manner for instance variable or adjustable at will,

for instance by reduction in the cross-section of free passageway of flow of the exhaust gases. This arrangement causes a reduction in the emptying or drainage of the engine cylinders so that **there remains residual air heated through compression within the cylinders which effects the desired heat contribution or supply to the supercharged air** and thereby making it easier to start the engine. This reduction in flow rate is removed as soon as the engine has started but it may also be maintained possibly while being modulated continuously depending upon or according to the partial load conditions of the engine.

Thus, Treuil does not anticipate the present claims.

Treuil teaches a device for helping **cold-start** a Diesel engine. The system comprises exhaust gas flow hardware and control strategy set up to engage as the engine is being cold started.

The present claims concerns a device for **braking an engine**. This requires that the system comprises exhaust gas flow hardware and control strategy set up to engage when the vehicle operator is trying to slow the vehicle/engine, including creating sufficient back-pressure to slow an engine yet not sufficient to damage the engine.

This difference is reflected in the claims, which begin with the preamble "**A motor brake device ...**". The reference to a motor brake device is a concrete claim limitation, not mere intended use or unnecessary limitation.

The device of the present invention must be capable of developing the back pressure sufficient to brake an engine. This can be a very high force.

Such a force would obviously not be suited to help start an

engine - it would prevent the starting of an engine.

Accordingly, Treuil has no relation to the present invention.

The Examiner rejects Claims 1, 28, 33-34, 39-42, 44 and 46-52 under 35 U.S.C. 102(b) as being anticipated by Schmidt et al. (DE Patent No. 198 53 360 A1).

Applicants respectfully traverse in view of the claims as amended.

Schmidt et al teaches an engine with two stage turbochargers (2,10) have different operating characteristic fields and connected in series. The turbo braking factor for maximum engine braking power is given by the product of the free cross-section in the exhaust gas path to the turbine at maximum braking power and the turbine wheel entry diameter divided by the engine stroke volume. The variable geometry blades are opened and closed depending upon whether the turbine is for generating power, generating braking power, or neutral. The braking device - the flow restrictor - is thus the blades of the variable geometry turbocharger (VTG).

To use the vanes of the VTG for braking creates problems.

First, while these are variably adjustable, they are very precise mechanical devices for adjusting flow of exhaust gas onto a turbine wheel, and are easily broken.

Second, and more importantly, if the VTG mechanism is used for braking, it can not be used/controlled independently of the braking operation. Thus, it can not be used to control EGR pressure, etc.

There is no teaching in Schmidt

- to provide a closing body in the exhaust pipe line downstream of the high or low pressure stages,

- design the closing body so that thereby the motor brake power is variably adjusted as required,
- that braking can be affected independent of VTG operation.

Accordingly, Schmidt et al. does not anticipate - or render obvious - the present claims. Withdrawal of the rejection is respectfully requested.

Claim Rejections under 35 U.S.C. § 103 (pages 13-16)

The Examiner rejects Claims 35-38 under 35 U.S.C. 103(a) as being unpatentable over either Treuil (US Patent No. 4,096,697) or Schmidt et al. (DE Patent No. 198 37 978 A1 or US 6,378,308 B1).

Applicants respectfully submit that these claims are allowable by virtue of their dependency from properly allowable claims.

The Examiner rejects Claim 43 under 35 U.S.C. 103(a) as being unpatentable over either Treuil (US Patent No. 4,096,697) or Schmidt et al. (DE Patent No. 198 37 978 A1).

Applicants respectfully submit that these claims are allowable by virtue of their dependency from properly allowable claims.

The Examiner rejects Claim 45 under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. (DE Patent No. 198 53 360 A1) in view of Sumser et al. (DE Patent No. 199 31 009 A1).

Applicants respectfully submit that these claims are allowable by virtue of their dependency from properly allowable claims.

U.S. Application No. 10/606,974
AMENDMENT A

Attorney Docket: DKT00071

The Examiner rejects Claim 53 under 35 U.S.C. 103(a) as being unpatentable over Schmidt et al. (DE Patent No. 198 53 360 A1) in view of Yanagihara (JP Patent No. 04017714 A).

Applicants respectfully submit that these claims are allowable by virtue of their dependency from properly allowable claims.

Allowable Subject Matter (page 16)

The Examiner indicated that Claims 30-32 would be allowable if rewritten or amended to overcome the formalities rejection.

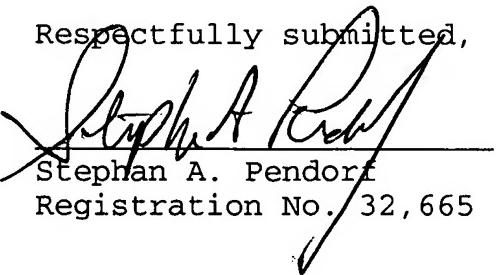
In response, Applicants amended the claims to overcome the formalities rejections.

The Examiner considers the prior art made of record and not relied upon pertinent to Applicant's disclosure.

Applicants do not have any further comments regarding these references.

As there are no further objections or rejections, early issuance of the Notice of Allowance is respectfully requested. Should the Examiner have any further suggestions, she is invited to contact the undersigned at the telephone number provided below.

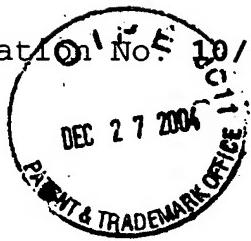
Respectfully submitted,


Stephan A. Pendorf
Registration No. 32,665

PENDORF & CUTLIFF
5111 Memorial Highway
Tampa, Florida 33634-7356
(813) 886-6085

Date: December 23, 2004

U.S. Application No. 10/606,974
AMENDMENT A

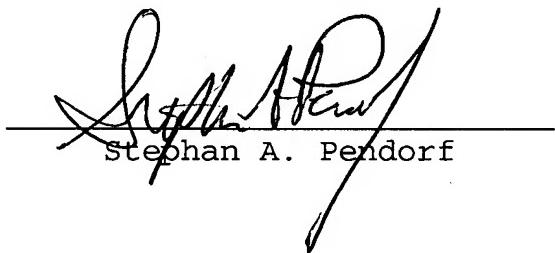


Attorney Docket: DKT00071

CERTIFICATE OF MAILING AND AUTHORIZATION TO CHARGE

I hereby certify that the foregoing AMENDMENT A for U.S. Application No. 10/606,974 filed June 26, 2003, was deposited in first class U.S. mail, with sufficient postage, addressed: Attn: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on **December 23, 2004**.

The Commissioner is hereby authorized to charge any additional fees, which may be required at any time during the prosecution of this application without specific authorization, or credit any overpayment, to Deposit Account No. 16-0877.



Stephan A. Pendorf